

A Survey on the Relation between Firm Size, Net Working Capital and Long-Term Operating Assets with the Return on Assets in the Companies Approved in Tehran Stock Exchange

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Abstract

The most crucial issue in this study is the return on assets in the companies approved in Tehran Exchange Market in order that the mentioned companies can increase the return on the assets through variables such as the company size, net changes of working capital and the changes in long-term operating assets. The method for this study is descriptive in terms of target which has been done via co relational method, and the method will be applicable. The time domain for the present paper is a six year period 2009-2014 and the spatial domain and the population was the companies approved in Tehran Exchange Market in which through some constraints, 103 companies were selected as samples. The needed information was extracted through financial data of the approved companies in Tehran Exchange Market in the burse library and via the burse software (data center of Tehran Exchange Market). And the EVIEWS and SPSS software were used to analyze the data and as a result the relation between the variables such as company size, the net working capital and long-term operating assets with the return on asset was confirmed.

Keywords: The firm size, net working capital, long-term operating assets, returns on assets, stock exchange

Introduction

Maximizing the shareholder's wealthy, maximizing firms profit, customer satisfaction, growth and learning, moral objectives, and doing social responsibilities can be the targets of a company and as a result the financial management. Although maximizing the profit seems desirable, it is not enough because first of all, this goal is limited and short-term and also it can have some disadvantages for the firm in long term. For instance, company may do some actions to maximize profit in short-term, however, such short-term proceedings have disadvantageous influences on the company and constraint the profitability in long-run. In addition, recently the managers in the organizations have broadened their insight by considering the interests for beneficiaries. Then the duty of the financial manager is to optimize the structure of assets, debts, and the salary of shareholders in order to maximize the stock value of shareholders (Modarres & Abdollahzadeh, 2011)

One of the fundamental issues in financial management is to manage the types of assets. In theory, the current assets have less return than fix assets. Therefore, financial manager should create a proper combination between current assets and the total assets, and also about the components of the working capital should decide to realize the target concerning the company value maximizing (ibid, 216).

In this regard, today managers of enterprises aim to use the assets in a way that can be profitable and insure continues operating of the enterprise. The companies can spend their financial condition and abilities to supply the resources and earn the maximum profit due to the increase in their working capital and long-term operating assets to reach the targeted efficiency (More & Jadik,

1991). If a firm increases its assets, it will grow in the future and also if the increase in long-term assets happens in proper condition, probably it will cause an increase in the production capacity and profit. In order to do that time loan, annual profit or asset increase are used the way it does not cause to decline in asset, because in long run inactive company can earn long-term assets through asset increase while the company which has more return on asset will own higher asset in comparison with other companies and vice versa. However, the company with lower return on assets has lower asset compared to other companies (Felicia, 2013). This paper mainly confirms the role of the company size, the changes in net working capital and long-term operating assets in increasing the return on assets in companies approved in Tehran Exchange Market.

Background of study

Fahimzadeh (1998) has done a research entitled “the relationship among the debt, profit and return on assets” on the members of the Stock Exchange. The results concerning the questions illustrated that in most cases the calculated correlation indicates the middle and reverse relation between the ratio of debts with benefit and return on assets which lead to different answers in different industries. Therefore, the companies using macroeconomic borrowing will probably face a decrease in profits while it is expected that the increase of debts will rise due to tax advantages, the low achieving cost, making more motivation in management for a better use of this resource and compensating the cost for the profit the profitability.

Abdollahi (1994) conducted a study in 1994-1996 entitled “Financial ratio commitment and the cash flow based ratio” on 30 members of Mashhad Stock Exchange. The results showed that the relation between the variables of Return on Assets (ROA) and cash flow had been reviewed. As it could be seen the statistics (t) related to slope coefficients of ROA in 1995 and 1996 indicated that the related slope coefficient cannot be interpreted as meaningful in the level of reliability. But in 1994 and in cumulative statistics t states the β coefficient related to ROA as meaningful. In variance analysis F statistics in 1993 and 1994 is low while in 1993 and in accumulative form shows the model as meaningful. The correlation coefficient is between ROA and CFOA but as can be seen the weak R^2 (0.04) in accumulative model states that only (0.04) of such changes of CFOA are explained by ROA, as a result each of the variables contains growing information content compared to each other and one cannot replace the other and it can be inferred that there is a meaningful relation between ROA and CFOA.

Mehdi Salehi (2012) in a research from 2005 to 2010 named “the relation between the working capital changes and fixed assets with return on assets” by using the data collected from the companies approved in Iranian Stock Exchange, has found a meaningful relation between the changes of working capital and the fixed assets with the return on assets.

Ruhollah Samadi (2010) in a research entitled “a survey on the relationship between the working capital growths and long-term operating assets and return on assets” has confirmed the following hypothesis by using the data collected from Mashhad Stock Exchange: the return on assets has relation with the working capital growth. The return on assets has relation with long-term operating asset growth.

Zebingogulas & Ana (2013) in an essay “a review on the relation between the working capital and the profitability of food industries” have studied the relation between the working capital and the profitability of food industries. To examine their hypothesis they have collected the related data from financial statements of the company by non-interactive method from 2005 to 2009 and after analyzing them and testing the hypothesis they concluded that first of all there is relation between the working capital and the profitability of the food industries. Secondly, the shorter the

investing rate in current assets the more the return on asset will be and shortening and accelerating the working capital cycle has a positive effect on profitability of the companies.

Fire field et al. (2003) conducted a research entitled “the accrual benefit and growth”. The researchers of this study have noted the idea that the past studies have focused on the cash flows in front of obligations and the role of obligations as a profitable component and have considered the role of obligations as a component of net operating assets to a great extent. The results showed that the negative effect of the net growth in the operating assets on the return on assets (ROA) contributes to a negative correlation between commitments (a component of net operating assets) and return on assets (ROA). In other words, there is a negative relation between the return on assets ROA with two components and commitments and the net growth of long-term operating assets.

Slon (1996) done a study entitled “commitments and cash flow and future profit”. He has counted on the commitments of the net operating assets as a profitable component in growth and he has separated the profitability into cash flows and commitment derived from the operation. The results showed that the profit expectations reflected in the cost of the stock from the investor’s expectation that has been dependent on intense assets will forget the different components of the profit and as a result will lead the investor to stray. The investors may similarly have wrong interpretations of applying long-term net growth of operating assets in future profitability and as a result of the weaker relation the asset growth has compared to the intense profits.

Hypotheses

H1: There is a relationship between working capital net changes and the return on assets in companies approved in Tehran Stock Exchange.

H2: There is a relationship between changes in long-term operating asset and the return on assets in companies approved in Tehran Stock Exchange.

H3: There is a relationship between the Firm size and the return on assets in companies approved in Tehran Stock Exchange.

Defining the variables

The net working capital: the result of the subtracting current assets and current debts is called as net working capital.

Working capital growth: the working capital is the company’s investment in current assets such as cash, vendible stock, the accounts and the receiving documents, deposit and the product (Hamilton, 2008). In this research the net working capital is the current asset subtracting current debt in balance sheet of the companies accepted in Tehran Stock Exchange and they have been gathered through the information given by companies in the whole period. Accounting and the growth of the working capital are obtained by the following formula. The growth in this research is the working capital.

The growth of the working capital= the net working capital of this year- the net working capital of last year

The net working capital= current assets- current debts

The changes in long-term operating assets: the long-term assets are the assets which provide economic profit for the enterprise in some future periods. In other words, the long-term assets include all assets which cannot be considered as current assets or the long-term assets which are used in usual process of the operation of market. In this study the following formula helps to obtain the long-term operating assets:

The long-term operating assets= growth of the net assets- growth of the working capital

The net growth of the assets= the salary of shareholder at the end of the year – the salary of the shareholders at the beginning of the year

Shareholders' equity: the shareholders equity is the surplus of a marketing unit divided by its debts which belongs to the shareholders.

The company size: the size of the companies is the effective factors on frequencies created in relation to the return on assets and the efficiency of stock market.

The return on assets: The main ratio in the capability of management in obtaining the return based on the owned resources is the rate of total return on assets. The number resulted from this ratio is the specific operating profit. The operating profit has been earned during the week; therefore, it should be divided by total assets:

The return on assets: the specific operating profit / the total assets average

A huge number of financial analyzers consider this ratio as the final indication to realize the efficiency and productivity of a manager in managing a marketing unit.

The specific operating profit: is the income subtracted by the total cost of the sold product and the operating costs related to continuous operation of marketing union (Noravesh, 2001).

Methodology

The method for this study is descriptive which has been done through correlational method and it is applicable. Concerning the time, it is temporary and includes the data of the companies approved in Tehran Stock Exchange from 2009 to 2014 which have been analyzed in this study. The statistical population of the present paper is the companies approved in Tehran Stock Exchange from the beginning of 2009 to the end of 2014 in a six-year period that have maintained their membership in Tehran Stock Exchange during this period. To reach reliable results the companies entered the Stock Exchange after 2009 or have left the market during the research have not taken into account. In addition, the population is balanced through following conditions:

- The sample should not contain financing supplement, investment or insurance companies.
- The company should be productive
- The studied companies should be present in Stock Exchange during the research time and all years studied, their orders have not stopped more than three months and the data needed for research is in the mentioned period.
- The sample companies should have the fiscal year ended in shamsi calendar year.
- The data related to research variables should be accessible for considered companies.

After applying these limitations, 103 companies were qualified to be in our statistical population. All 103 companies were used for the hypothesis testing and no other sample used.

Table1. The way to choose the companies of the population

Explain	The number	The number
The number of the companies in Tehran Stock Exchange until the end of 2008		345
The companies entered the Stock Exchange during the research time	35	
The number of the companies that their fiscal year do not end in calendar year	102	
The number of the companies that are active in brokering and investing	31	
The number of the companies that their information was not enough to calculate the variables or was inaccessible	74	
Total		242
The number of the population		103

Resource: the researcher's calculation

The way of choosing the companies is mentioned in Table1 and the category of selected companies related to each industry is shown in Table2.

Table2. The combination of sample companies based on the industry

NO	The number of chosen companies	Industry name
1	15	Pharmaceuticals
2	11	Chemicals
3	10	The car
4	10	Cement
5	10	Manufacture of basic metals
6	9	Food ingredients except sugar
7	8	Machinery and equipment
8	7	Ceramic tiles
9	6	Mines
10	6	Electric devices
11	6	Non-metallic mineral products
12	5	Rubber and Plastics
	103	Total

The method for the present research is based on non-interactive data collection. After events type, in which to test the hypothesis we review and analyze the quantitative data existed in financial statements of the companies approved in Stock Exchange. The needed information was extracted through the financial statements of the companies approved in Tehran Stock Exchange archived in the bourse's library to review and test the hypothesis and other information was extracted by bourse software. After the information extraction process was over first they were entered in Excel 97 software and the initial processing was done after programming, and after that the data analysis was done through EVEIWS and SPSS. In the present research to review the hypothesis the Limer testing, Hausman Testing and the linear Regression testing were applied.

Findings of the study

In this study the Pierson correlation coefficient was used for the linear coefficient test. The result from correlation matrix is mentioned in Table3.

Table3. The correlation matrix of research variables

	Return on assets	The working capital changes	Long-term operating assets changes	Company size	The ratio of market value to book value of the company
Return on assets	1				
The working capital changes	0.0330268	1			
The Long-term operating assets changes	0.0108020	-0.20743495	1		
Company size	0.0449134	0.485039867	-0.30912	1	
The ratio of market value to book value of the company	0.0030373	-0.21013142	0.322406	-0.2465086	1

By considering the results, it can be seen that the correlation coefficient is so weak between all variables. Therefore, the Limer coefficient problem is canceled between independent variables (Khaki, 1992).

Here it should be specified that if the need to consider the data panel structure is necessary or the data related to different companies is pooled and it will be used in model estimation. Therefore, to estimate a proper model, Limer testing is used to decide on the admission or rejection of the equality of fixed effects of the companies and finally about choosing the classical method or the panel data method.

Therefore, the statistics for the calculated meaningful level is less than 5 the H0 hypothesis is rejected and this rejection means that the intercepts are different for companies and using the pooling method is incompatible and non-functional. Hence, the results from panel model should be noted. In the second step, the Hausman testing is used to identify whether fixed effects method or random effects should be used to identify the model estimation.

The first hypothesis testing

As can be seen in Table 4, since the statistic value of the meaningful level is less than %5, based on Limer testing, the H0 is accepted and in this case the intercepts are different for companies and pooling method is incompatible and non-functional. Therefore, the results for panel model should be cared.

Table 4. The results of Limer testing for choosing either Panel or Pool method

Model	Zero hypothesis	p-value	Result
1	The Special effects of the company are not (pooling method is appropriate) significant	0.0371	H0 is not confirmed the compounding method with panel is used
2	The special effects of the company is not (pooling method is appropriate) meaningful	0.0012	H0 is not confirmed and the compounding method with panel is chosen

According to the Table 5, when the value of meaningful level calculated with Hussmen testing is less than 5%, the H0 is rejected and as a result the best estimation is fixed effects method.

Table 5. The results for Hausman testing to choose the fixed effects method or random effects method

Model	H0 zero hypothesis	p-value	Test result
1	Consistent estimates of random effects	0.0087	H0 is not confirmed and the fixed effect method is chosen
2	Consistent estimates of random effects	0.0386	H0 is not confirmed and the fixed effect method is chosen

Table 6. Least squares regression of the dependent variable ROA

Model components	coefficients(β)	(Std, Error)	t	Sig
Intercept	0.099428-	0.041170	2.415063-	0.0160
Working capital changes	0.297788	0.029670	10.03664	0.0000
Company size	0.042527	0.006735	6.314428	0.0000
The ratio of market value to book value of the company	0.004947	0.003583	1.380667	0.1679
Ar(1)	0.179791	0.003583	3.788607	0.0002

Table 7. Significant test model

The determination coefficient	Adjusted coefficient	Statistics F	Sig	Durbin Watson statistic
0395596	0.383380	16.26451	0.000000	2.031103

The Table 7 shows the estimation of research model for all years and due to the use of cross-sectional data, anisotropy of generalized least squares method is used to eliminate the variance.

Initially F-test was used to determine the significance of the model. The statistic hypothesis are as follows:

H0: all coefficients are zero

H1: at least one of the coefficients is not zero

The F statistic, since the probability is (0.000) shows that the regression model is 99% correct and the whole regression is significant.

- After making sure of the significance of the estimation model t statistic in the error level of $01/0 = \alpha$ is used to examine the relationship. As can be seen in Table 5, the calculated probability for working capital in reliability level of 99% with 1% error is significant (the significant level is less than 1% and absolute value of t is more than 2). B ratio suggests appositive relationship between changes in working capital and the return on assets.
- In this model the corrected determining factor (R) is about 39% which means that 39% of the changes in dependent variable is explicable through significant independent variable.
- The value related to Durbin Watson statistic (DW) in Table 6 shows the absence of serial correlation problem. In better words the Durbin Watson statistic calculated for regression model shows that this number is (1.5-2.5), and absence of correlation in regression model confirms the above model.

Also, in Table 5, it can be seen that the correction factor ar 1 has been stated in the equation. This factor is in charge of the autocorrelation function of the residual equation. This factor is statistically significant. Since the ar1 coefficient is significant, therefore it is assumed that autocorrelation issue has been corrected in residual sentence.

The second hypothesis testing

Table 8. Least squares regression of the dependent variable ROA

Model components	coefficient(β)	(Std, Error)	T statistic	sig
intercept	0.056315	0.047041	1.197143	0.2317
The Long-term operating assets changes	3.20-E-06	0.000819	0.003907-	0.9969
Company size	0.021505	0.007869	2.732809	0.0065
The ratio of market value to book value of the company	0.003268	0.004155	0.786501	0.4319
Ar(1)	0.079769	0.047431	1.681783	0.0031

Table 9. The whole model testing

Determination factor	Balanced factor	Statistic F	Sig	Durbin Watson statistic
0.428722	0.414201	41.978009	0.000000	2.011758

The Table 9 shows the estimation of research model for all years and due to the use of cross-sectional data, Anisotropy of generalized least squares method is used to eliminate the variance.

- Initially F-test was used to determine the significance of the model. The statistic hypothesis is as follows:

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H0: all coefficients are zero

H1: at least one of the coefficients is not zero

The F statistic, since the probability is (0.000) shows that the regression model is 99% correct and the whole regression is significant

- a) After making sure of the significance of the estimation model t statistic in the error level of $01/0 = \alpha$ is used to examine the relationship. As can be seen in Table5, the calculated probability for working capital in reliability level of 99% with 1% error is significant (the significant level is less than 1% and absolute value of t is more than 2). Ratio suggests a positive relationship between the company size and turn on assets. Also, there is an inverse relationship between negative and long-term changes in operating assets and return on assets.
- b) In this model the corrected determining factor (R) is about 41% which means that 41% of the changes in dependent variable are explicable through significant independent variable.
- c) The Durbin Watson statistic calculated for regression model shows that this number is (1.5-2.5), and absence of correlation in regression model confirms the above model.

Based on the above table since the ar1coefficient is significant, so it is assumed that the autocorrelation issue has been corrected in residual sentence.

Also, the third hypothesis which shows the significant relation between the company size and the return on assets for the company was confirmed.

Conclusion

According to the mentioned results about the significant levels of t statistics and also F statistics since the probability of F statistic is (0.000), it showed that the reviewed regression is 99% correct and since there was significant relation between the working capital changes variable and return on assets variable, it can be concluded that the first hypothesis was confirmed.

According to mentioned results about the significant levels of t statistics and also F statistics since the probability of F statistic is (0.000), the reviewed regression is 99% correct and since there was significant relation between the working capital changes variable and return on assets variable, it can be found that the second hypothesis was verified.

Also, the third hypothesis which indicates the significant relation between the company size and return on assets was confirmed.

Recommendations

Recommendation about the first hypothesis (managing the working capital)

Managing different kinds of assets and debts is one of the most important issues in financial management. Usually current assets have less return in comparison with fixed assets. Current debts compared to long-term debts for financial supply are less costly. Therefore, the combination of debts and assets compared to each other and compared to the total assets is so crucial, because obtaining low return or making high cost will lead to the value reduction of the company. Hence it is suggested:

The financial manager should initially make a proper combination between current assets and the total assets in one side and the total debts and the rights of the shareholders on the other side. Secondly, about the components of working capital and the amount of each one, manager should decide in a way that finally realizes the objective of company's maximizing value.

Based on the short-term adaptation needs principle (current assets) should be supplied through short-term resources because it has more flexibility as well as less cost. On the other hand, long-term assets of the company should be supplied through long-term financial resources because these assets are long lasting and the return is not short-term. Financial supply of the assets by debts

with same date is called Safeguarding measures (saving against the risks). This issue is also related to manager's strategy (risk taking or not taking risks).

Recommendation on managing the cash flow

The objective of cash flow management is that first of all we have enough cash to supply the present and future needs as well as using the unneeded cash correctly.

- The cash flow is dependent on following factors:
- Every day trading needs
- Cautious needs for unpredicted conditions
- Speculation needs in order to use profitable opportunities
- Therefore the following ways are suggested to preserve the cash:
- At least it should be maintained as much as cash transactions and precautionary demand
- To keep the cash transactions in bank accounts such as short-term savings accounts
- To invest the cash precautionary and speculative for short-term exchange.
- To make the cash payment and receiving at the same time to keep less cash.

The companies which have seasonal operations in case of having additional cash can buy short-term exchange and sell it when they do not have enough cash. Also, the companies can invest the cash that they keep for future developments on short-term exchanges.

Recommendations on managing the receivable accounts

- Attempting to collect debts in the shortest time
- Credit sales made on credit standards
- Accelerating cash receipts and delaying cash payments to the extent that do not damage the company's reputation

Recommendations on specifying the desired amount of orders and management

- Compliance for renewing the supply of goods as the company is not dealing with high warehousing costs or with inventory shortages. The contingency reserve is maintained.
- Planning for the minimum remaining inventory which protects the company from losses caused by the lack of raw materials
- Major shopping discounts should be used when purchasing goods is major
- Buying with inquiries and tenders which comply with elements such as price, quality, time, and place of purchase.
- Marketing aspects should be considered because limited credit policy will decrease the sale.

Recommendation on second hypothesis (long-term working capitals)

First of all according to the reverse relation between the changes in working capital and the changes in long-term operational assets, it is recommended that the investments to be done in long-term assets by applying current assets management.

Secondly, prioritizing the investment plans complying with the selection and plan prioritizing rules should be done based on the decision making rules in confidence and non-confidence situation for the operational assets to have the maximum return.

Recommendation on third hypothesis

Since the relation between the company size and the return on assets was significantly confirmed it is suggested that:

Because of the importance of the working capital for small companies and since small companies have less finance in comparison with big companies, it is necessary for small companies to invest on working capital so that if necessary they can change the current assets to cash and get far from the bank corruption.

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